

What is claim d is:

1. An antenna system comprising:
 - a support structure; and
 - a multiband/multichannel wireless feeder configured for coupling antennas located proximate the top of a support structure with electronics located proximate the base of the support structure to overcome losses typically associated with coaxial cables.
2. The antenna system of claim 1, wherein the multiband/multichannel wireless feeder comprises:
 - a waveguide having a coupling at each end; and
 - a multiplexing waveguide network coupled at each end of the waveguide and configured to combine frequencies and applications.
3. The antenna system of claim 2, wherein the waveguide is an elliptical waveguide and the antennas are singular polarization antennas.
4. The antenna system of claim 2, wherein the waveguide is a circular waveguide and the antennas are dual polarization antennas.
5. The antenna system of claim 2, wherein the first application is a 3G system and the second application is a PCS system.

6. A multiband/multichannel wireless feeder configured for use in an antenna system, the multiband/multichannel wireless feeder comprising:
 - a waveguide having a coupling at each end; and
 - a multiplexing waveguide network coupled at each end of the waveguide and configured to combine frequencies and applications.
7. The multiband/multichannel wireless feeder of claim 6, wherein the waveguide is an elliptical waveguide.
8. The multiband/multichannel wireless feeder of claim 6, wherein the waveguide is a circular waveguide.
9. The multiband/multichannel feeder of claim 6, wherein the first application is a 3G system and the second application is a PCS system.

10. An method of overcoming losses typically associated with coaxial cables, the method comprising:

coupling antennas located proximate the top of a support structure with electronics located proximate the base of the support structure using a multiband/multichannel wireless feeder.

11. The method of claim 10, further comprising combining frequencies and applications.